Predictive Use of Artificial Intelligence in Policing

Predictive use of Artificial Intelligence (AI) can assist in identifying patterns contained in data and facilitate the forecasting of trends through analysis of historical and real-time data. Application of predictive analytics can be used to support precision policing models where police leverage statistical systems to analyze past crime and situational data to help estimate the likelihood of future criminal activity. However, evidence of the accuracy and effectiveness of existing predictive AI solutions is limited.

Predictive use of AI operates through a combination of machine learning and statistical analysis, and the quality of the data used matters significantly to the system's efficacy. Incomplete or inconsistent values weaken predictive capabilities. Datasets should consist of as much quality data as can be acquired. For example, where practicable, information spanning several years should be utilized, as more data input generally leads to more refined predictions.

Examples of Predictive AI Technology

- PredPol / Geolitica
- HunchLab
- SoundThinking / CrimeTracer

In addition to the quantity and quality of data issues, users must consider the accuracy and reliability of the underlying algorithms supporting the predictive AI application. Users should be aware of the system's limitations and should corroborate its predictions to the extent possible and applicable, balancing the system's benefits against its possible risks.

Benefits of Predictive AI

Predictive use of AI can enhance strategies for proactive policing and public safety. Predictive AI is generally able to do the same statistical analyses and forecasts that many agencies already do, but is faster and more efficient, allowing personnel to be allocated to other functions. For example, predictive AI systems have been used to:

- Prepare police to respond to crime before it happens by locating hot spots, forecasting future criminal activity, and strategically allocating personnel resources to those times and places.
- Help officers assess risk and make data-informed decisions.
- Automate analysis of open-source data, such as social media posts, and use it to predict the likelihood of future threats.
- Analyze real-time data from closed-circuit television (CCTV) footage, license-plate readers (LPR), or other video streams.
- Predict unusual behavior and help to detect potential threats as they occur, immediately alerting police of the activity and allowing for quick response.

Limitations and Threats of Predictive AI

Despite its potential for improving various policing processes, the implementation of predictive AI has raised critical discussions about privacy, bias, accountability, and more. When adopting any new technology, but especially in the case of AI, agencies must understand its limitations and risks and develop plans to mitigate them. Considerations may include:

- ***Privacy*** – Internal datasets compiled by police may consist of personal identifiable and sensitive information, creating a risk to privacy and confidentiality when input into predictive AI systems.

- ***Security breaches*** – Once data is put into AI systems, it becomes more vulnerable to hackers seeking to access sensitive information. Because AI works best with large amounts of information, this can pose a risk for significant security breaches.
- ***Data integrity*** – When datasets include incomplete or inaccurate information, it influences findings, potentially making predictions and forecasts less reliable.
- ***Bias*** – Many biases can be present in data, and when that data is used by AI systems for analysis or training, it is possible for biases to be perpetuated or even amplified.
- ***Over-reliance*** – Automating aspects of policing may lead to agencies and individual officers to over-rely on the use of AI systems. If individuals do not verify AI outputs, they risk missing critical errors that can negatively impact the communities they're meant to serve.
- ***Efficacy*** – While there are many claims from third-party vendors about the effectiveness of their predictive AI models, the existence of independent scientific testing to validate those claims is generally lacking. The proprietary nature of AI solutions further complicates the challenge of independent testing.

Police agencies should develop appropriate safeguards to reduce the risks of predictive AI and evaluate whether the benefits of using predictive AI outweigh the potential harms.

CONSIDERATIONS FOR ADOPTION[1]

Predictive AI must be used responsibly and ethically to preserve fairness, accountability, and public trust. Doing so is critical for police agencies to effectively leverage predictive technology to anticipate and mitigate crime, ultimately fostering safer communities.

A critical ethical consideration is *algorithmic justice*,[2] where fairness and equity are pursued in algorithmic decision-making. This involves actively preventing and mitigating biases in AI algorithms that could disproportionately affect specific communities, by implementing safeguards such as data quality reviews and audits. Algorithmic justice highlights the importance of necessitating equitable outcomes and the risk of perpetuating historical inequalities or systemic biases. Inherent to the assessment of algorithmic justice is the concept of explainability—understanding and articulating the algorithmic function of the underlying AI application. This can be a concern when using third-party proprietary software.

Explainability is a key aspect of transparency, which is essential in ethical AI adoption. Informing community members of how predictive AI is used in policing strategies and giving them an opportunity to voice their perspectives on its use may enhance community trust in policing operations.

Clear and transparent policies and robust data governance practices are necessary for the effective integration of predictive AI into police operations. There must be explicit guidelines on the application(s) and limitations of predictive systems, ensuring that they are used only as intended. Agencies must also adopt security measures to protect sensitive information. Procedures must be developed for the monitoring and assessing of predictive AI performance, maintaining a high standard of its reliability and effectiveness

These considerations require a great deal of attention and effort, so it is crucial to evaluate whether these practices would be practical for your agency before adopting predictive AI models. The IACP's *Concepts & Issues Paper on the Implications Associated with Police Use of Artificial Intelligence* offers a robust description of AI in policing, including its applications, limitations, and leading practices.

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[1] For a fuller discussion, see the IACP Policy Center guidance on *Implications Association with Police use of Artificial Intelligence.* https://www.theiacp.org/resources/policy-center-resource/implications-associated-with-police-use-of-artificial-intelligence.

[2] Yankov, Georgi P., Breanna Wexler, Sarah Haidar, Sukesh Kumar, Jimmy Zheng, & Ann Li. 2020. *Algorithmic Justice*. Society for Industrial and Organizational Psychology. https://www.siop.org/wp-content/uploads/legacy/docs/White%20Papers/justice.pdf?ver=2020-05-07-085828-327.